

1. FACILITY CONDITION

A. Nuclear criticality safety.

NOTE: *The Criticality Safety Group (ESH-6) shall be contacted as soon as reasonably practical to aid in critique, categorization, and analysis of suspected criticality safety occurrences. ESH-6 shall contact the LANL Nuclear Criticality Safety Committee Chairperson for advice as appropriate. If these expert consultants cannot be contacted in a timely manner the event or condition shall be categorized at the higher level of those under consideration.*

NOTE: *Each section of the Nuclear Criticality Safety reporting criteria shall be reviewed if there is a suspected criticality event/condition.*

Section I. Nuclear criticality has occurred in a system not intended to reach criticality.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: *Emergency Management and Response (EM&R) shall categorize all potential emergencies.*

UNUSUAL

and

OFF NORMAL None specified.

Section II. Events related to emergency evacuation alarm systems.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: *Emergency Management and Response (EM&R) shall categorize all potential emergencies.*

UNUSUAL Actuation of a Criticality Alarm System when the system is required by the facility authorization basis to be operational and the actuation is not due to approved testing or planned maintenance on the system.

NOTE: *Criticality Alarm Systems are safety related equipment which are covered by written operating and maintenance procedures. If there is a procedural violation (e.g., missed surveillance, etc.) then refer to the appropriate section in the LANL Categorization Criteria Matrix to categorize the incident. This categorization shall include consideration of the potential for impact on the safety related system due to the nature of the incident. All such occurrences shall be categorized under the applicable Group and also under 1.A.*

Section III. Compromised criticality controls and barriers.

NOTE: If there is a loss of engineered criticality safety contingency controls, categorization requires completion of the following table to determine the severity of the event. Identify all formally claimed barriers (e.g. documented administrative or engineered contingencies), then, for each barrier claimed identify whether the barrier was lost or compromised. Apply the criteria in the Emergency, Unusual and Off Normal categories listed below.

Barriers
Formally Claimed
(BFC)

Barriers Lost or
Compromised
(BLC)

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Barrier parameters	(1 = yes; 0 = no)	(1 = yes; 0 = no)
Neutronic coupling (e.g. spacing)	_____	_____
Poison	_____	_____
Density	_____	_____
Reflection (albedo)	_____	_____
Shape (geometry)	_____	_____
Volume	_____	_____
Chemical/mixture concentration	_____	_____
Enrichment	_____	_____
Moderation	_____	_____
Mass	_____	_____
SUM:	(BFC = _____)	(BLC = _____)

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.
NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL An event or condition for which all formally claimed barriers to prevent criticality were either lost or compromised (i.e. BFC - BLC = 0).

OFF NORMAL An event or condition for which only one formally claimed barrier to prevent criticality was effectively in place (i.e. BFC - BLC = 1).
NOTE: Events or conditions which BFC - BLC \geq 2 are not generally reportable, but shall be evaluated under Section IV below, and shall be critiqued and developed as lessons learned in collaboration with ESH-6.

Section IV Events or conditions resulting in abnormal system k_{eff} .

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.
NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL An event or condition in which the normal maximum system $k_{eff} = 1 - a$, and the event or condition results in an elevated k_{eff} , such that the observed or estimated change in k_{eff} meets the following criteria:

$$\Delta k_{eff} > \frac{a}{2}$$

following criteria:

OFF NORMAL An event or condition in which the normal maximum system $k_{eff} = 1 - a$, and the event or condition results in an elevated k_{eff} , such that the observed or estimated change in k_{eff} meets the following criterion

$$\frac{a}{5} \leq \Delta k_{eff} \leq \frac{a}{2}$$

following criterion

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NOTE: Events or conditions where $\Delta k_{eff} < \frac{a}{5}$ are not reportable, but shall be critiqued and developed as lessons learned.

Section V. Events or conditions involving criticality safety instrumentation or procedures.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL See NOTE below.

OFF NORMAL See NOTE below.

NOTE: Depending on the instrument or procedure type, facility status and failure mode, consult the appropriate Group governing safety-related equipment in the LANL Categorization Criteria Matrix (see 1.C, 1.E, 1.F, 1.G, 1.I). The intent of this section is to evaluate procedural issues (e.g. inadequate control of systems intended to reach criticality, material balance inaccuracies, solution assay equipment inaccuracies or other hardware calibration issues) to determine the potential for creation of a criticality safety issue. All such occurrence shall be categorized under the applicable Group and also under 1.A.

Section VI. Unanticipated accumulation of fissile material.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL Discovery of fissile material in any form (encapsulated or loose) in an amount exceeding the reporting thresholds (Table 1.A.1) in a vessel, continuous duct or containment not designed or expected to accommodate such material.

NOTE: Occurrences reported under this criterion, shall also be evaluated under Group 5.J, "Material control and accountability."

OFF NORMAL None specified.

B. Fires/explosions.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL

- A fire or explosion that causes failure or performance degradation of Class A equipment.
- A fire or explosion within a posted contamination area, high contamination area, airborne radioactivity area, or fixed contamination area.
- A fire or explosion within a radiological containment device or structure, such as a glove box,

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vessel or ductwork.

- d. A fire or explosion, regardless of radiological posting, that involves radioactive material or results in the spread of radioactive contamination greater than the threshold values of the LANL Radiological Control Manual Table 2-2 (see Table 1.D.1 of this matrix).

- OFF NORMAL
- a. A fire that causes failure or performance degradation of Class B equipment.
 - b. A fire that requires longer than 10 minutes to extinguish, following the arrival of Los Alamos Fire Department personnel.
 - c. A planned controlled burn and/or standby situation where the resulting fire is not controlled by the standby fire unit(s).
NOTE: This excludes anticipated brush or grass fires resulting from explosive/test shots that are extinguished in accordance with facility procedures, e.g. by standby fire protection personnel.
 - d. A fire or explosion within a radiologically controlled area or radiological buffer area, but that does not involve radioactive material and does not result in the spread of radioactive contamination greater than the threshold values of the LANL Radiological Control manual Table 2-2 (see Table 1.D.1 of this matrix).
 - e. A fire or explosion that activates a fire suppression system.

NOTE: This includes halon, water sprinklers, CO₂, etc.

C. Abnormal events or conditions that result in the safety status or the analytical basis of a facility or process being seriously degraded.

EMERGENCY None specified.

- UNUSUAL
- a. An abnormal event or condition resultant from a failure to adhere to requirements contained in an approved Technical Safety Requirement, Technical Specification, Operational Safety Requirement, Safety Analysis Report, or other authorization basis defined by the facility, LANL, or DOE.
 - b. Discovery of an incorrectly derived operational safety limit in an approved Technical Safety Requirement, Technical Specification, Operational Safety Requirement, Safety Analysis Report, or other authorization basis defined by the facility, LANL, or DOE.
 - c. An unresolved safety question (USQ), as indicated by a positive response to one or more of the seven questions in a formal USQ evaluation process.
NOTE: Occurrence reportable under this criterion shall contain the acronym USQ in Item 13 "Subject or Title."
 - d. An abnormal event or condition that is outside the design basis or authorization basis of the facility.
 - e. An abnormal event or condition that does or would prevent immediate facility or offsite response capabilities.

NOTE: This includes inoperative fire alarms if the extent of inoperability would compromise response, and out-of service fire vehicles or ambulances resulting in response capability below the required level.

- OFF NORMAL
- a. An abnormal event or condition involving the safety status or analytical basis of a facility, and resulting in limitation of facility operations for more than eight working hours, either self-imposed or due to procedural requirements.

D. Loss of control of radioactive material or spread of radioactive contamination.

NOTE: "Contamination" as used in this category indicates direct or swipe survey results confirmed by an

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approved radiological control program procedure. Single or small numbers (e.g. 10%) of results slightly above the reporting levels are not reported if radiological control procedures discount such results as statistically insignificant.

NOTE: Certain frequent or chronic contamination occurrences (e.g. discovery of historical contamination) may be subject of roll-up reports. Facility-specific agreements approved by DOE/LAAO must be in place for all roll-up reports.

NOTE: Historical contamination discoveries i.e. not attributable to current LANL operations, are reported under category 2.A. Contamination resultant from the prior history of ongoing operations shall be attributed to the current operations.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL a. Identification of radioactive contamination offsite that is attributable to current LANL operations, and that is in excess of 100 times the values specified in Table 1.D.1.

NOTE: Contamination found onsite but in areas fully accessible by the public (e.g. Bradbury Science Museum, Otowi Cafeteria) shall be treated as offsite contamination. Office areas are not generally treated as full public access.

OFF NORMAL a. Identification of removable or fixed contamination in excess of ten times (10x) the values in Table 1.D.1, within a controlled area where contamination is anticipated, but that has not been specifically posted for the control of radiological contamination. Areas specifically posted for the control of radioactive contamination are:

- 1) Radiological Buffer Areas established to control contamination;
- 2) Contamination or High Contamination Areas; or
- 3) Fixed Contamination Areas (exemption of reportability applies to fixed contamination only).

NOTE: Contamination found within controlled areas established strictly for external radiation fields, and where there is no anticipation of possible loose contamination, are subject to criterion of section b) below.

b. Identification of removable or fixed contamination on surfaces, items, personnel or personal clothing, or anti-contamination clothing in excess of three times (3x) the values in Table 1.D.1 in an uncontrolled area, or in an area controlled strictly for external radiation fields, but located on LANL or DOE property.

NOTE: Fixed contamination on anti-contamination clothing is subject to exemptions under the Radiological Control Manual Article 461 allowances if such contamination is judged to be residual after laundering. Exemption thresholds are: a) Beta/gamma radioactivity less than 10,000 dpm/100cm², b) Alpha radioactivity less than 1,000 dpm/100 cm².

c. Identification of removable or fixed contamination in excess of the values (1x) in Table 1.D.1, on items of excess property located in uncontrolled areas, such as the JCI salvage yard or the GSA motor pool, and destined for sale to the public.

NOTE: Items in holding areas or otherwise awaiting release by radiological survey procedures for transport to the salvage yard or motor pool are exempt from this criterion, but are subject to all other criteria of Group 1.D.

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D. Loss of control of radioactive material or spread of radioactive contamination (continued).

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- d. Identification of contamination in excess of the values (1x) in Table 1.D.1, on or in waste located in uncontrolled areas, including waste receptacles or sanitary waste dumpsters, and destined for the Los Alamos County Landfill.
NOTE: Waste in holding areas or otherwise awaiting release by radiological survey procedures for release to the Los Alamos County Landfill is exempt from this criterion.
NOTE: For determination of reportability, direct survey at the surface of any waste container (e.g. plastic bag, box) shall be compared with the values of Table 1.D.1.
- e. Spills of liquids in excess of 1 gallon, contaminated with radioactive material in concentrations greater than the Derived Concentration Guide values listed in Table 1.D.2.
- f. Identification of radioactive contamination offsite that is attributable to current LANL operations, and that is in excess of the values (1x) specified in Table 1.D.1.
NOTE: Contamination found onsite but in areas fully accessible by the public (e.g. Bradbury Science Museum, Otowi Cafeteria) shall be treated as offsite contamination. Office areas are not generally treated as full public access.

E. A deficiency such that a structure, system, or component vital to safety or program performance does not conform to stated criteria and cannot perform its intended function.

NOTE: See facility-specific list of Class A and B equipment/systems.

NOTE: Also refer to facility-specific criteria for appropriate reporting levels.

EMERGENCY None Specified.

- UNUSUAL
- a. Failure, performance degradation, or discovery of a defective item or service involving Class A equipment, that prevents satisfactory performance of the design function when it is required in response to an abnormal event or condition.
 - b. An event or condition categorized as an Unusual Occurrence under any other section of this matrix, determined to be caused or partially caused by a defective item or service.
 - c. Failure, performance degradation, or discovery of a defective item or service involving systems designed, installed, and operated for the protection of facility or co-located facility workers when it is required in response to an abnormal event or condition.
NOTE: This includes: fire protection systems in any building or structure, including office space which fail to respond to smoke, heat or fire; radiation monitoring systems such as continuous air monitors which fail to respond to a radiological event or condition; criticality alarm systems which fail to respond to a criticality or high dose rate event or condition; radiation detection equipment that fails to alarm when required to control spread of contamination, etc.
 - d. Failure, performance degradation, or discovery of a defective item or service involving equipment required to be in service during normal operations by the facility authorization basis (e.g. TSR, OSR, SAR).

- OFF NORMAL
- a. Performance degradation of Class A equipment that does not prevent satisfactory performance of the designed function, or that occurs when the equipment is not required, e.g. discovered during testing or inspection.
 - b. Failure, significant performance degradation or discovery of a defective item or service involving Class B equipment.
 - c. Failure, significant performance degradation or discovery of a defective item or service with safety-significance for facility or co-located facility workers.
NOTE: Reportable under this criterion are deficiencies in equipment (e.g. cranes, hoists, machines) if the failure of such parts or equipment has potential safety-significant consequences. For example, suspect/counterfeit fasteners in overhead cranes are reportable if failure could result in a dropped load or falling crane part.

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- d. Events or conditions indicative of performance degradation of systems designed, installed, and operated for the protection of facility or co-located facility workers which do not prevent satisfactory performance of their design function or which occur when the system is not required (e.g., discovered during testing or inspection).

NOTE: This includes fire protection systems; radiation monitoring systems such as continuous air monitors; criticality alarm systems; radiation detection equipment in place to alarm, or to control spread of contamination, etc. Such discoveries are reportable whether or not retrospective analysis of the safety status of the facility indicates there was actual risk to workers.

- F. Violation of procedures or inadequate procedures (includes maintenance requirements) that result in adverse effects on performance, safety, or reliability.

NOTE: See facility-specific list of Class A and B equipment/systems.

NOTE: Violations reported under 1.F. often will not be reportable under other categories of this matrix, i.e. may not involve any otherwise abnormal event or condition.

EMERGENCY None specified.

- UNUSUAL
- a. Violation of procedures (including maintenance procedures) required to satisfy an approved Technical Safety Requirement, Technical Specification, Operational Safety Requirement, Safety Analysis Report or other authorization basis defined by the facility, LANL or DOE.
 - b. Maintenance performed on Class A equipment without meeting the required facility conditions for non-availability.
 - c. Incorrect or unauthorized maintenance on, calibration of, or modifications to Class A equipment.

- OFF NORMAL
- a. Violation of procedures or inadequate procedures resulting in costs (actual equipment damage, including parts and labor) in excess of \$1,000.
 - b. Violation of procedures or inadequate procedures that result, or could result in adverse effects on performance, safety, or reliability of equipment, systems or processes.
NOTE: Reportable under this criterion are all procedural violations that have actual or potential impact on the safety status or operational status of the facility. Examples include: lockout/tag-out violations; exclusion area violations; protective equipment violations, etc.
 - c. Incorrect or unauthorized maintenance on, calibration of, or modifications to Class B equipment.

- G. Unsatisfactory conditions found by surveillance, inspection or testing.

NOTE: See facility-specific list of Class A and B equipment/systems.

NOTE: Conditions reported under 1.G. often are not reportable under other categories, i.e. do not involve any otherwise abnormal event or condition.

EMERGENCY None specified.

- UNUSUAL
- a. Surveillance, inspection or testing indicating unsatisfactory operation, maintenance, or modification of any Class A equipment.
 - b. Surveillance, inspection or testing indicating that safety-related equipment required to be operational by approved Technical Safety Requirements, Technical Specifications, Operational Safety Requirements, Safety Analysis Reports or other authorization basis defined by the facility, LANL or DOE is not operating within limits specified.

- OFF NORMAL
- a. Surveillance, inspection or testing indicating unsatisfactory operation, maintenance, or

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modification of any Class B equipment.

H. A deficiency in structure, system, component, or facility vital to program continuity, that to redesign, repair, or otherwise establish the adequacy of the item will result in a significant program delay or cost.

NOTE: This does not include delays in construction activities if such delays are anticipated and within the norm for such activities.

EMERGENCY None specified.

UNUSUAL a. Deficiency that results in a program delay of more than three months.
b. Deficiency that results in a redesign or repair estimated to cost more than \$100,000.

OFF NORMAL a. Deficiency that results in a program delay of more than one month but less than three months.
b. Deficiency that results in a redesign or repair estimated to cost more than \$10,000 but less than \$100,000.

I. Operations

NOTE: See facility-specific list of Class A and B Equipment/Systems.

NOTE: Also refer to facility-specific criteria for appropriate reporting levels.

EMERGENCY a. Weather conditions or natural phenomena causing a serious breach of a facility or structure.
b. Request to an offsite authority for emergency assistance resulting from the activation of the LANL Emergency Response Plan.

NOTE: This does not include support provided by the LAFD.

UNUSUAL a. Actuation of safety systems, automatic protection systems, emergency systems, or engineered safety features, in appropriate response to an abnormal event or condition.
NOTE: This category refers to suppression (in the case of fire) and active protection (e.g. SCRAM) systems, but not detection systems that are covered below as Off-Normal. Exempt from reporting are actuation of safety systems anticipated by procedure or special work permit or under approved testing.
NOTE: Actuators are categorized as Unusual only if the initiating abnormal event or condition was itself reportable, and the response was a correct mitigator of that event or condition. For example, fire suppression in response to heat or smoke is reported here, but fire suppression in response to inadvertent system perturbation, (e.g., electrical perturbations, freezing, pressure surges) shall be categorized below as Off-Normal.
b. Loss of incoming AC power and a failure of any backup emergency power system supplying power to Class A systems to operate for any facility.
c. Weather conditions/natural phenomenon causing serious disruption of Laboratory operations.
NOTE: ESH-7 shall be the designated FM for occurrences reported only under this criterion. Weather related occurrences categorized also under other portions of this matrix are assigned to the appropriate Facility Manager.
d. Any unplanned nuclear excursion in a reactor or critical assembly, including unplanned insertions of reactivity below prompt critical, whether or not terminated by protective actions, that is outside the routinely accepted and experienced bounds for that reactor or assembly.
e. Loss of any process ventilation system used for confinement, sufficient to invert pressure zones.

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I. Operations (continued)

- OFF NORMAL
- a. An unplanned or unexpected change in a process condition or variable sufficient to require termination of an operating procedure in a nuclear facility.
- b. Unplanned outages of service systems that disrupt normal operations of a facility, excluding office space for more than 48 hours.
NOTE: This includes systems such as cooling water, steam, ventilation, or communications.
NOTE: This does not include outages to fire protection or security systems (See 1. E.)
- c. Unexpected consequences from a planned outage that disrupt normal operations of a facility for more than 48 hours beyond the planned outage.
NOTE: This includes systems such as cooling water, steam, ventilation, or communications.
NOTE: This does not include outages to fire protection or security systems (See 1. E.)
- d. Loss of any process ventilation system which serves a confinement or safety function, but does not result in inversion of pressure zones.
- e. Facility or laboratory module evacuation (including office space) conducted in response to an actual occurrence that is otherwise reportable under these criteria.
NOTE: Occurrences reported under this category shall in all cases be reported also under another criterion of this matrix. The level of reporting (Off Normal, Unusual) shall be determined by the other, primary category. Precautionary evacuations are not reportable if the event or condition that caused the evacuation is itself not reportable .
- f. Unanticipated actuation of systems designed, installed, and operated for the detection of abnormal workplace events or conditions and not covered under other categories (e.g. fire alarms, radiation alarms, etc.).
NOTE: Actuations of continuous air monitoring systems are not reportable if (1) their actuation was found to be due to radon-thoron effects on the system, or (2) their actuation is anticipated to occur (e.g. hot jobs) and the workers are appropriately protected, or 3) their actuation is demonstrated to be inadvertent and not in response to an actual airborne release within 24 hours. Recurrent inadvertent CAM alarms exceeding an accepted frequency shall be reported both here and under 9.A.
NOTE: Actuations of detection systems (e.g. fire alarms) are not reportable if they are demonstrated to be inadvertent and not in response to an actual event or condition (e.g. heat, smoke, etc.) within 15 minutes after arrival of LAFD. Recurrent inadvertent fire alarms in excess of an accepted frequency shall be reported both here and under 9.A.
- g. Restricted airspace violation that results in cancelling or postponing scheduled activities such as an explosive test shot.
- h. Actuation of active protection systems (e.g. fire suppression systems, SCRAM systems) in response to inadvertent system perturbations (e.g. electrical perturbations, frozen pipes, pressure surges).

J. Inadequate experiment/test performance, outside of the experiment/test protocol, resulting in significant delay or cost to a program.

NOTE: Exempt from this criterion are delays or costs in research programs in which such delays or costs are anticipated as part of the research program by the respective program office or source of funding.

EMERGENCY None specified.

- | | |
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| UNUSUAL | a. Deficiency that results in a program delay of more than three months.
b. Deficiency that results in a redesign or repair of systems or equipment estimated to cost more than \$100,000. |
| OFF NORMAL | a. Deficiency that results in a program delay of more than one month but less than three months.
b. Deficiency that results in a redesign or repair of systems or equipment estimated to cost more than \$10,000 but less than \$100,000. |

2. ENVIRONMENTAL

A. Radionuclide releases

NOTE: Cross reference all events or conditions reported under Group 2.A with Group 2.E, agreement/compliance activities.

NOTE: For all reporting criteria under 2. Environmental, "release" is defined as any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or otherwise disposing of substances into the environment. This includes abandoning/discarding any type of receptacle containing substances in an unenclosed containment structure. "Environment" is defined as any surface water, ground water, drinking water supply, land surface, subsurface strata or ambient air. For any other definition required in the interpretation of environmental portions of this matrix refer to 40 CFR 302, Section 101 (page 2-8).

NOTE: All determinations of reportability of environmental events or conditions to state or federal regulatory agencies shall be made by the appropriate Environmental Protection function in ESH Division.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL

- a. Release of radioactive material to the environment that requires immediate reporting (less than 4 hours) to any state or federal regulatory agency (e.g. National Response Center).
- b. Release of radioactive material to the environment that results in a written notice of violation including monetary penalties from any state or federal regulatory agency.
NOTE: See also 2.E criteria. The time of discovery for reporting in this category, or for upgrading from Off Normal to Unusual if applicable, shall be the time of receipt by the Laboratory of the official written notice.
- c. Release of radioactive material to the environment that is non-compliant with the requirements of DOE 5400.5 "Radiation Protection of the Public and the Environment" or the LANL Radiological Control Manual Article 422. This includes noncompliance with any of the following: public dose limits; limits to discharge for liquid waste (e.g. exceedance of Derived Concentration Guides); and contamination limits for release of property or equipment to the public.
- d. Release of a radioactive material that exceeds the respective reportable quantity (RQ) as defined in either CERCLA (40 CFR 302) or the LANL SPCC, or in cases of permitted release, that exceeds the permitted quantity by the applicable RQ.
- e. Any confirmed stack emission monitoring result that indicates noncompliance with the offsite dose limits of NESHAP (42 CFR 112).

OFF NORMAL

- a. Release of radioactive material to the environment that is not classified as an Unusual Occurrence, but that will be reported in writing to an external agency (e.g. State of New Mexico, EPA, National Response Center) in a format other than routine reports.
- b. Release of radioactive material to the environment that results in a written notice of violation without monetary penalties from any state or federal regulatory agency.
NOTE: See also 2.E. criteria. The time of discovery for reporting in this category, or for upgrading from Off Normal to Unusual if applicable, shall be the time of receipt by the Laboratory of the official written notice.
- c. Release of radioactive material to the environment that is not part of a normal monitored release and exceeds 50% of a reportable quantity (RQ), defined in either CERCLA

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(40 CFR 302) or the LANL SPCC.

d. Release of radioactive material that is part of normal operations, but which exceeds the normal range for such a release established by historical experience, process knowledge, procedures or special work permits.

NOTE: Strict guidelines for controlled releases are not provided. Generally, exceedance of the anticipated release by a factor of 2 (i.e. 100%) should be reported.

B. Release of hazardous substances, regulated pollutants, and petroleum products.

NOTE: Cross reference all events or conditions reported under Group 2.B with 2.E, agreement/compliance activities.

NOTE: See notes to 2.A for definitions of "release", and "environment" and other terms.

NOTE: All determinations of reportability of environmental events or conditions to state or Federal regulatory agencies shall be made by the appropriate Environmental Protection function in ESH Division.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL a. Release of a hazardous substance or regulated pollutant to the environment that requires immediate reporting (less than 4 hours) to any state or federal regulatory agency.
b. Release to the environment of a hazardous substance, regulated pollutant, or petroleum product that results in a written notice of violation including monetary penalties from any state or federal regulatory agency.

NOTE: See also 2.E. criteria. The time of discovery for reporting in this category, or for upgrading from Off Normal to Unusual if applicable, shall be the time of receipt by the Laboratory of the official written notice.

c. Release of 100 gallons or more of petroleum products (e.g. oil, gasoline, distillates).

d. Release of a hazardous substance, regulated pollutant or petroleum product to the environment that exceeds the RQ, or in cases of permitted releases exceeds the permitted quantity by the RQ, as specified in either CERCLA (40 CFR 302) or the LANL SPCC.

OFF NORMAL a. Release of a hazardous substance or regulated pollutant to the environment that is not classified as an Unusual or Emergency Occurrence, but that will be reported to any state or federal regulatory agency in writing other than routine reports.

NOTE: Exceedance of National Pollutant Discharge Elimination System (NPDES) permits generally do not provide quantification of the total release, and thus are reported under 2.E.

b. Spill or release of petroleum products less than 100 gallons but greater than 10 gallons.

c. Spill or release of ethylene glycol or glycol ethers in excess of 100 pounds.

d. Release of hazardous substances, regulated pollutants or petroleum products not specifically mentioned above that exceeds 50% of the applicable RQ as specified in either CERCLA (40 CFR 302) or the LANL SPCC, or in cases of permitted releases that exceeds the permitted quantity.

e. Spill or release of sewage that is reported to any state or federal regulatory agency in writing other than routine reports.

NOTE: Sewage spills of less than 100 gallons are subject of quarterly roll-up

<p><i>reporting, per DOE/LAAO approval.</i></p> <p>f. Release to the environment of a hazardous substance, regulated pollutant, or petroleum product that results in a written notice of violation with no monetary penalties from any state or federal regulatory agency.</p> <p><i>NOTE: See also 2.E. criteria. The time of discovery for reporting in this category, or for upgrading from Off Normal to Unusual if applicable, shall be the time of receipt by the Laboratory of the official written notice.</i></p>	
<p>C. Discovery of radioactive or hazardous material contamination due to DOE operations.</p> <p><i>NOTE: See notes to 2.A for definitions of "release", and "environment" and other terms.</i></p> <p>EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.</p> <p><i>NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.</i></p> <p>UNUSUAL a. Discovery of onsite or offsite contamination due to DOE operations that do not represent an immediate threat to the public, that exceeds the respective RQ for such materials as specified in either CERCLA (40 CFR 302) or the LANL SPCC.</p> <p>b. Any discovery of groundwater contamination that is not part of an existing plume previously identified in either an annual report or in any CERCLA/RCRA activity report.</p> <p>OFF NORMAL a. Discovery of hazardous substances, regulated pollutants or petroleum products, offsite, or onsite in a water course, sanitary or storm sewer, in a waste or process stream destined for environmental release, that exceeds 50% of a reportable quantity for such material as specified in either CERCLA (40 CFR 302) or the LANL SPCC, or that will be reported in writing to any state or federal regulatory agency in a format other than routine reports.</p> <p>b. Detection of radioactive material offsite, onsite in a water course, in a sanitary or storm sewer, in a waste or process stream destined for environmental release, that exceeds surface contamination limits of the LANL Radiological Control Manual Table 2-2, and that has not been previously identified in a formal report.</p>	
<p>D. Ecological resources.</p> <p><i>NOTE: See notes to 2.A for definitions of "release", and "environment" and other terms.</i></p> <p>EMERGENCY None specified.</p> <p>UNUSUAL An occurrence causing significant impact to any ecological resource for which the DOE is a trustee.</p> <p>NOTE: Examples are destruction of a critical habitat, significant damage to a historic/archaeological site, or significant damage to wetlands. Determinations of reportability under this criterion are made by the appropriate Environmental Protection function in ESH Division.</p> <p>OFF NORMAL None specified.</p>	
<p>E. Agreement/compliance activities.</p> <p>NOTE: In all cases where the released quantity or the environmental impact is known or estimated, occurrences should be categorized both under 2.E and the appropriate release</p>	

Group (2.A or 2.B). If released quantities are unknown (e.g. most NPDES exceedances) occurrences shall be categorized only under 2.E.

NOTE: See notes to 2.A for definitions of "release", and "environment" and other terms.

NOTE: "Enforcement actions" referred to in 2.E include: notice of violations (NOV); administrative orders (AO); compliance orders (CO); administrative penalty orders (APO); and onsite field citations. Notices of deficiency (NOD) with no monetary penalty shall not be reported.

NOTE: All determinations of reportability of environmental events or conditions to state or federal regulatory agencies shall be made by the appropriate Environmental Protection function in ESH Division.

EMERGENCY None specified.

UNUSUAL a. Environmental agreement, compliance, remediation, or permit-mandated activity for which formal written notice of enforcement action including monetary penalties has been received from the relevant regulatory agency, e.g. that an implemented site plan is not satisfactory or that a site is considered to be in non-compliance with schedules or requirements.

NOTE: The time of discovery for reporting in this category, or for upgrading from Off-Normal to Unusual if applicable, shall be the time of receipt by the Laboratory of the official written notice.

b. An occurrence under any agreement compliance area that requires notification of any state or federal regulatory agency within 4 hours or less.

OFF NORMAL a. Environmental agreement, compliance, remediation, or permit-mandated activity for which formal written notice of enforcement action with no monetary penalties has been received from the relevant regulatory agency, e.g. that an implemented site plan is not satisfactory or that a site is considered to be in non-compliance with schedules or requirements.

NOTE: The time of discovery for reporting in this category, or for upgrading from Off-Normal to Unusual if applicable, shall be the time of receipt by the Laboratory of the official written notice.

b. An environmental agreement noncompliance that will be reported to any state or federal regulatory agency in writing in a format other than routine reports.

NOTE: Such notifications are usually made by Environmental Protection functions of ESH Division, and are preceded by an oral notification. Reporting is not required for courtesy notifications to regulatory agencies that are not followed with a non-routine written report. Reporting is also not required for environmental incidents that fall below specific reporting thresholds of this matrix (e.g. petroleum products), regardless of whether such below-threshold incidents are reported in writing.

c. Discharges to the environment that exceed maximum or daily average levels specified in National Pollution Discharge Elimination System (NPDES) permits.

NOTE: Consider Category 2.B as an additional category if details of the release quantity are known.

NOTE: Sequential, similar exceedances from the same outfall, or of similar pollutants from similar outfalls may be subject to generic or roll-up reporting with prior DOE/LAAO approval.

3. PERSONNEL SAFETY

A. Occupational illness/injuries.

NOTE: Determinations whether illnesses, injuries or lost workday cases are "occupational" in nature are made in consultation with ESH-5 according to 29 CFR 1904.

NOTE: Events or conditions that do not meet these criteria shall be assessed as possible near misses and categorized both here and in 9.C if appropriate. For example, illness or injury treated on outpatient basis shall be categorized as a near miss unless it is deemed strictly precautionary treatment.

EMERGENCY None specified.

UNUSUAL

- a. An event due to LANL operations resulting in a fatality.
- b. A single event or condition resulting in three or more lost workday cases as defined by 29 CFR 1904.
- c. An event or condition which results in the inpatient hospitalization of three or more individuals due to occupational illness or injury.

OFF NORMAL An event or condition which results in the inpatient hospitalization of one to two individuals due to occupational illness or injury.

B. Vehicular/aircraft incidents.

NOTE: This section covers transportation incidents involving DOE- or government-owned vehicles, subcontractor-owned vehicles while performing work under DOE or Laboratory contract, or privately owned vehicles in use on official Laboratory business. Injury criteria apply to all individuals involved in the incident, including non-Laboratory individuals.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL

- a. A vehicular incident resulting in a fatal injury.
- b. A vehicular incident which results in the inpatient hospitalization of three or more individuals.

OFF NORMAL

- a. A vehicular incident resulting in one to two lost workday cases or requiring inpatient hospitalization of one to two individuals.

C. Miscellaneous.

NOTE: Personnel exposures and OSHA violations shall be confirmed to exceed reporting criteria through consultation with ESH-5 specialists. Occupational Safety and Health Administration (OSHA) "Permissible Exposure Limits" (1989, or most recent version) and American Conference of Governmental Industrial Hygienist (ACGIH) "Threshold Limit Values for Chemical Substances, Physical Agents and Biological Exposure Indices" (1993, or most recent version) serve as the basis for reporting criteria.

3. PERSONNEL SAFETY

EMERGENCY None specified.

- UNUSUAL
- a. Personnel exposure to hazardous chemicals which exceeds the most stringent of the following exposure limits:
 - OSHA Permissible Exposure Limit-Time Weighted Average (PEL)
 - OSHA Ceiling Concentration
 - ACGIH Threshold Limit Value-Time Weighted Average (TLV-TWA)
 - ACGIH TLV-Ceiling (TLV-C)
 - ACGIH TLV-Short Term Exposure Limit (TLV-STEL)
 - ACGIH Excursion Limit (for chemicals lacking a TLV-STEL or TLV-C)
 - b. Personnel exposure to physical agents which exceeds the more stringent of an applicable OSHA exposure limit or ACGIH Threshold Limit Value, with appropriate time weighing applied.
- OFF NORMAL
- a. Personnel exposure to hazardous chemicals or physical agents which is below the Unusual reporting threshold but exceeds an OSHA "action level" listed in Table 3.1
 - b. Stop work order initiated as a result of an OSHA violation or multiple violations indicative of imminent danger or significant compromise of personnel safety (e.g. trenching operations without adequate shoring or working at regulated heights without fall protection).

4. PERSONNEL RADIATION PROTECTION

A. External Radiation Exposure.

NOTE: Unless specified otherwise, all doses in the following requirements are calculated as the total effective dose equivalent (TEDE), i.e. the sum of the committed effective dose equivalent due to radionuclides taken into the body (internal exposure) and the effective dose equivalent due to external exposure. All dose action levels cited apply to unanticipated doses incurred as a result of a single event, procedure or operation, or to the integrated result of a single dose measurement, e.g. monthly dosimeter recall or single bioassay procedure. Personnel doses that were anticipated, planned and approved in accordance with radiological control procedures are not reportable.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL

- a. Exposure of any occupational worker to external radiation fields which, in conjunction with any internal exposures, results in a dose excess of the applicable annual limit for occupational workers given in Table 4.
- b. Exposure of any minor or student to external radiation fields which, in conjunction with any internal exposures, results in a dose excess of the annual limits given in Table 4.
- c. Exposure of any member of the public to external radiation fields which, in conjunction with any internal exposures, results in a dose in excess of the annual limits given in Table 4 for onsite exposures, or any applicable limit in DOE Order 5400.5, Chapter II, Paragraph 1 for offsite exposures.

OFF NORMAL

- a. Unplanned single exposure of any occupational worker to external radiation fields that, in conjunction with any internal exposures, result in a dose that exceeds an established facility administrative limit or is in excess of 10% of the applicable annual limit for occupational workers given in Table 4, whichever is less.
- b. Exposure of any minor or student, onsite, to external radiation fields that, in conjunction with any internal exposures, results in a dose that is greater than 25% of the annual limit given in Table 4.
- c. Exposure of any member of the public to external radiation fields that, in conjunction with any internal exposures, results in a dose that is greater than 25% of the annual limit given in Table 4 for onsite exposures, or 25% of any applicable limit in DOE Order 5400.5, Chapter II, Paragraph 1 for offsite exposures.

B. Personnel contamination.

NOTE: All personnel contamination criteria apply to levels before decontamination, and shall be confirmed by established radiological control procedures, if such apply, prior to reporting. Contamination of personnel protective (anti-c) clothing are generally not reportable under 4.B, but shall be reviewed as possible near miss personal clothing or skin events and categorized both here and under 9.B if deemed appropriate. In addition, anti-c contamination may be reportable under 1.D if in an uncontrolled area.

NOTE: Reporting levels are expressed as activity per unit area of skin/clothing (e.g. 500 dpm/100 cm²). If the contaminated area is less than 100 cm², such as in one or more localized "spots," the reporting level (e.g. 500 dpm) shall be applied to each individual spot, or the sum of spots that are

4. PERSONNEL RADIATION PROTECTION

within a contiguous 100 cm² area.

EMERGENCY None specified.

UNUSUAL

- a. An event that results in five or more individuals' skin or personal clothing (including shoes) being contaminated, in excess of 5000 dpm beta/gamma/100 cm² or 500 dpm alpha/100 cm².
- b. An event that results in five or more individuals being contaminated as indicated by nasal swipes in excess of 1000 dpm beta/gamma or 100 dpm alpha (action levels are the sum of the two nostrils).
- c. An event that results in contaminated personnel requiring medical assistance from offsite agencies (e.g. Los Alamos Medical Center).
- d. Identification of radioactive contamination on personnel or personal clothing offsite due to Laboratory operations in excess of the values in Table 1.D.1.

OFF NORMAL

- a. An event that results in one to four individuals' skin, or personal clothing (including shoes) being contaminated in excess of 5000 dpm beta/gamma/100 cm² or 500 dpm alpha/100 cm².
- b. An event that results in one to four individuals being contaminated as indicated by nasal swipes in excess of 1000 dpm beta/gamma or 100 dpm alpha (action levels are the sum of the two nostrils).

C. Internal Exposure.

NOTE: Unless specified otherwise, all doses in the following requirements are calculated as the total effective dose equivalent (TEDE), i.e. the sum of the committed effective dose equivalent due to radionuclides taken into the body (internal exposure) and the effective dose equivalent due to external exposure. All dose action levels cited apply to unanticipated doses incurred as a result of a single event, procedure or operation, or to the integrated result of a single dose measurement, e.g. monthly dosimeter recall or single bioassay procedure. Personnel doses that were anticipated, planned and approved in accordance with radiological control procedures are not reportable.

NOTE: Intakes of radioactive material are reported under 4.C when ESH-12 internal dosimetrist submit as the dose of record an internal dose that exceeds the thresholds, or when, on the basis of early indicators (e.g. nasal swipes) ESH-12 dosimetrists estimate that the dose thresholds have been exceeded.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL

- a. Any confirmed intake of radioactive material by a worker that, in conjunction with any external exposures, results in a dose in excess of the annual limit given in Table 4.
- b. Any confirmed intake of radioactive material by a minor or student that, in conjunction with any external exposures, results in a dose in excess of the annual limit given in Table 4.
- c. Any confirmed intake of radioactive material by a member of the public that, in conjunction with any external exposures, results in a dose in excess of the annual limit given in Table 4 (for onsite exposures) or DOE Order 5400.5, Chapter II, Paragraph 1 (for offsite exposures).

4. PERSONNEL RADIATION PROTECTION

- OFF NORMAL
- a. Any confirmed intake of radioactive material by a worker that is estimated, based on early results, to result in a committed effective dose equivalent equal to or greater than 0.1 rem, or 2% of the annual limit specified in Table 4.
 - b. Any confirmed intake of radioactive material by a minor or student, onsite, that would result in a committed effective dose of equivalent equal to or greater than 0.01 rem, or 10% of the annual limit specified in Table 4.
 - c. Any confirmed intake of radioactive material by a member of the public that would result in a committed effective dose equivalent equal to or greater than 0.01 rem, or 10% of the annual limit specified in Table 4.

5. SAFEGUARDS AND SECURITY

NOTE: Occurrence reports in this category shall be reviewed under FSS-SPO authority for security classification in addition to ESH-7 review for privacy considerations. In certain circumstances FSS-SPO may direct that the Notification/10-day/Final reports withhold any or all factual information. In such circumstances ESH-7 shall notify the DOE Facility Representative and DOE Program Manager of the existence of, and method of access to any classified report(s) of the occurrence.

NOTE: FSS-SPO must be immediately notified of any Group 5 potential reports prior to initiation of oral or written notification reports. Coordination with FSS-SPO is required for all Group 5 occurrence reports to ensure protection of sensitive law enforcement investigations and compliance with other DOE Orders. The lack of detail which may be required in such reports is recognized by DOE management.

A. Criminal acts.

NOTE: For the purpose of this Group of reportable occurrences, the term "onsite" applies to all facilities, installations, and the real property subject to jurisdiction or administration of the Department of Energy or in its custody which have been posted with notices of prohibitions and penalties.

NOTE: Full reporting of an occurrence under Group 5.A is not required when an ongoing case may be jeopardized. In such cases, full reporting shall be made upon completion of the investigation.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL a. Discovery of a suspicious device in a nuclear facility.

NOTE: The discovery of a suspicious device is not reportable if the device is determined not to be an actual explosive device, and not indicative of malevolent activity within two hours after arrival of the Hazardous Device Team.

b. A terrorist, sabotage or bomb threat to a nuclear facility resulting in significant disruption (e.g. evacuation) of the facility.

c. A criminal breach or attempted breach of a secure/classified facility.

d. Occurrences on DOE property involving violent crimes (e.g. assault/battery, murder or unjustified use of deadly force), for which criminal charges are filed or are expected to be filed.

e. Theft, criminal diversion or destruction of government property valued greater than \$100,000 initial purchase cost.

NOTE: FSS-SPO shall determine whether property losses are "theft", possible "possible theft" or "missing property." Only those property losses categorized by FSS-SPO as theft or possible theft, and deemed by FSS-SPO to result from a single criminal act or sequence of acts shall be reported here. Other missing property shall be categorized under Group 7 Value Basis.

f. Racketeering or other organized criminal activity onsite.

(continued next page)

A. Criminal acts (continued).

5. SAFEGUARDS AND SECURITY

- OFF NORMAL
- a. Discovery of a suspicious device on DOE property.
 - b. A terrorist, sabotage or bomb threat to a non-nuclear facility resulting in significant disruption (e.g. evacuation) of the facility.
 - c. Theft, criminal diversion or destruction of government property valued between \$10,000 and \$100,000 initial purchase cost.
NOTE: FSS-SPO shall determine whether property losses are "theft", possible "possible theft" or "missing property." Only those property losses categorized by FSS-SPO as theft or possible theft, and deemed by FSS-SPO to result from a single criminal act or sequence of acts shall be reported here. Other missing property shall be categorized under Group 7 Value Basis.
 - d. Onsite felony activity (e.g. blackmail, fraud, embezzlement, extortion, forgery) not involving classified information.

B. Loss of control of classified matter.

NOTE: Occurrence reports under Group 5.B shall be submitted by the responsible organization that was in custody of the classified matter prior to the loss or compromise, but will also be coordinated with FSS-SPO.

EMERGENCY None specified.

- UNUSUAL
- a. Confirmed loss of matter classified as Top Secret, Sensitive Compartmented Information (SCI), or Special Access Program (SAP).
 - b. Known compromise (i.e. disclosure to an uncleared individual) of matter classified Top Secret, Secret, Confidential, including SCI and SAP.

- OFF NORMAL
- a. Confirmed loss of matter classified as Secret or Confidential.

C. Substance abuse.

NOTE: Occurrence reports under Group 5.C shall be submitted by the organization to which the individual involved in substance abuse is assigned and approved by FSS-SPO prior to submittal to DOE.

NOTE: Self-referrals for drug counseling shall not be reported.

NOTE: Occurrence reports under Group 5.C shall be coordinated with Laboratory Counsel before submitting to DOE.

EMERGENCY None specified.

- UNUSUAL
- a. Onsite possession of controlled/illegal substance(s) with the intent to distribute onsite.
 - b. Any reportable occurrence at least partially attributed to the use of alcohol or illegal drugs by DOE, DOE contractor or subcontractor personnel.
NOTE: Involvement of alcohol and drugs shall be determined by FSS Reliability Programs office or ESH-2 Medical Review Office in coordination by FSS-SPO.

- OFF NORMAL
- Discovery of the use, possession, or involvement of alcohol or illegal drugs onsite by DOE or DOE contractor personnel.
- NOTE: Confirmed positive random drug test results shall be reported in coordination with FSS-SPO in routine roll-up reports with DOE/LAAO approval.*

D. Foreign intelligence activities.

NOTE: Occurrence reports under Group 5.D shall be reviewed for classification by FSS-16, and approved by FSS-SPO and Laboratory Counsel prior to submittal to DOE.

EMERGENCY None specified.

UNUSUAL a. Extortion/blackmail directed at DOE or DOE contractor/subcontractor personnel with the intent of obtaining classified information/systems, detailed information concerning plant processes or configurations, or aiding in sabotage or terrorist acts.
b. Espionage, foreign intelligence activities, treason, or subversive activities by or directed at DOE or DOE contractor personnel.

OFF NORMAL a. Attempted unauthorized access to classified or sensitive information, technology, or special nuclear materials.
b. An event or condition not covered by other criteria, but in which DOE or DOE contractor/subcontractor personnel believe that they may be the target of an attempted exploitation related to classified or sensitive information, technology, or special nuclear material.

E. Computer equipment and systems.

EMERGENCY None specified.

UNUSUAL a. Attempted unauthorized access to classified computerized data, whether judged successful or unsuccessful.
b. Discovery of a computer virus which did result in the compromise of security features or the disruption of facility operations.
NOTE: Computer viruses on stand-alone machines are not generally deemed to have significant impact on facility operations. All computer viruses, including nonreportable, shall be reported to FSS-SPO for their followup.

OFF NORMAL a. Discovery of a computer virus that could have but did not result in the compromise of security features or the disruption of facility operations.
NOTE: Computer viruses on stand-alone machines are not generally deemed to have significant disruptive impact. All computer viruses, including nonreportable, shall be reported to FSS-SPO for their followup.

F. Unplanned or unscheduled outage of facility security system.

NOTE: Outage of a single component of a redundant security system is not reportable.

NOTE: Outages authorized by a facility shutdown plan or any special security plan are not reportable.

NOTE: All reports under 5.F. shall be approved by FSS-10 prior to submittal to DOE.

EMERGENCY None specified.

UNUSUAL Unplanned or unscheduled outage of any facility security system or a major component of the facility security system that results in a potential vulnerability, or that allows or could allow unauthorized or undetected access to Protected Areas, Exclusion Areas, Materials Access Areas, or Sensitive Compartmented Information Facilities.

OFF NORMAL Unplanned or unscheduled outage of any facility security system or a major component of the facility security system that requires compensatory measures, such as the physical presence of the protective force to prevent unauthorized access.

G. Demonstrations and protests.

NOTE: FSS-SPO shall approve all reports under Group 5.G. prior to submittal to DOE.

EMERGENCY None specified.

UNUSUAL a. Demonstration or protest activities that impede vehicular or employee access or egress from the facility or site.
b. Attempted or actual trespass resulting from demonstration or protest activities.
c. Demonstration or protest activities causing significant property damage or bodily harm requiring medical treatment.

OFF NORMAL Lawful demonstrations or protests warranting deployment of additional protective forces.

H. Firearms.

NOTE: FSS-SPO shall approve all Group 5.H reports prior to submittal to DOE.

EMERGENCY None specified.

UNUSUAL Unauthorized firearms discharge resulting in personal injury.

OFF NORMAL a. Unauthorized firearms discharge resulting in no personal injury.
NOTE: Accidental discharge of firearms at the LANL firing range while under appropriate supervision is not reportable, unless deemed a near miss to personal injury.
b. Loss or theft of one or more DOE firearm, or one or more round of explosive munitions.
c. Confirmed theft of 100 rounds or more of ammunition, including blank ammunition.
d. Unreconcilable loss of 100 rounds or more of ammunition.
NOTE: The loss of blank ammunition is not reportable unless deemed by FSS-SPO to indicate a criminal act.

I. Other security items.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.
NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL a. Discovery or possession of unauthorized wiretapping or eavesdropping devices.
b. Unauthorized use, alterations, possession, or theft of security badge, passes, credentials, or other forms of official identification (to include blank stock or forms) to successfully gain access to a protected area or limited area.
NOTE: These reports shall be submitted by the organization responsible for the protected or limited area to which access was gained, and shall be approved by FSS-10 prior to submittal to DOE.
c. Malicious mischief, vandalism or tampering involving Class A equipment.

OFF NORMAL a. Onsite death of DOE or DOE contractor personnel by unnatural causes (e.g. suicide, drug overdose).
NOTE: These reports shall be submitted by the organization to which the individual is assigned, and shall be approved by FSS-SPO prior to submittal to DOE.

	<p>b. Loss of security badges in a calendar year, in excess of 1%.</p> <p>c. Onsite malicious mischief, disorderly conduct, or vandalism that disrupts (normal operations) or causes damage between \$10,000 and \$100,000.</p> <p>d. Malicious mischief, vandalism or tampering involving Class B equipment, or equipment designed, installed or operated for the protection of facility or co-located facility workers (e.g. radiological survey equipment).</p> <p><i>NOTE: These reports shall be submitted by the facility in which the disruption or damage occurred, and shall be approved by FSS-SPO prior to submittal to DOE.</i></p> <p>e. Discovery of unauthorized possession of firearms, explosives, munitions, recording devices or other unauthorized items within a secure area or an area posted with notices of prohibitions and penalties, and that are suspected of being positioned for the purpose of a malevolent act.</p>
J.	<p>Material control and accountability.</p> <p>NOTE: All reports under Group 5.J shall be submitted by the organization responsible for the material, but shall be considered classified pending review by an authorized derivative classifier from FSS-16.</p> <p>NOTE: The LANL MC&A Procedural Handbook and FSS-12 Material Control and Accountability subject matter experts shall provide clarification of Group 5.J reporting criteria (e.g. alarm and warning limits) as necessary. Table 5.J.1 lists accountable quantities, which are also the lower thresholds for Category IV, for all "nuclear materials" subject to these criteria. Category I-IV quantification of nuclear material involved in an event or condition shall be determined by FSS-12 using detailed guidance in DOE 5633.3A, "Control and Accountability of Nuclear Material."</p> <p>EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.</p> <p><i>NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.</i></p> <p>UNUSUAL</p> <p>a. Loss or apparent loss of one or more accountable items for which the items total a Category III or less quantity of nuclear material (includes item losses due to shipper-receiver differences).</p> <p>b. Nuclear material inventory difference, at the material balance area level (loss or gain), that exceeds alarm limits, and does not involve the loss of a discrete item, and is greater than a Category III quantity of nuclear material, and cannot be reconciled within two hours.</p> <p>c. A shipper-receiver difference involving a gain in the number of discrete items for which the item(s) gained total to a Category II or greater quantity of nuclear material.</p> <p>d. Evidence that nuclear material balance data have been manipulated or falsified to mask a diversion or theft or to alter loss detection sensitivity. FSS-SPO assists the Facility Manager in this determination.</p> <p>e. Alarms or other indicators (excluding inventory differences or shipper-receiver differences) from loss detection elements for Category I and II material balance areas that involve a malevolent act or cannot be proven to be false within two hours.</p> <p>f. Loss or apparent loss of an accountable quantity of nuclear material whenever a state, local government, or other federal agency must be notified.</p> <p>g. Loss of accountability of a radioactive source that exceeds the lesser value of exempt quantities as specified in DOE Notice N5400.9 (Sealed Radioactive Source Accountability) or any applicable state standards/regulations.</p> <p><i>NOTE: The ESH-12 X-ray/Source Control Team shall be consulted to determine reportability under this criterion.</i></p> <p>OFF NORMAL</p> <p>a. Alarms or other indicators (excluding inventory differences or shipper-receiver differences)</p>

from loss detection elements for Category III and IV material balance areas that involve a malevolent act or cannot be proven to be false within one work day.

b. Nuclear material inventory difference at the material balance area level (loss or gain), that exceeds the warning limit but not the alarm limit, and does not involve the loss of an item, and exceeds the accountable quantity, and cannot be reconciled within the normal reporting process to DOE/AL Nuclear Safeguards Branch under requirements of DOE 5633.3A.

c. Nuclear material inventory difference (loss or gain) that exceeds the alarm limits, and does not involve the loss of an item, is less than a Category II quantity of material, and cannot be reconciled within the normal reporting process to DOE/AL Nuclear Safeguards Branch under requirements of DOE 5633.3A.

d. A shipper-receiver difference that exceeds 50 grams of fissile material and the combined limit-of-error for the shipment.

e. A shipper-receiver difference involving a gain in the number of discrete items for which the item(s) gained total less than a Category II quantity of material.

6. TRANSPORTATION

NOTE: Events or conditions shall be categorized under Group 6 with consultation from BUS-6 Transportation Support Services, who shall interpret all DOT requirements (including 49 CFR, Federal Motor Carrier, and FAA regulations). DOT definitions of "hazardous materials," including "radioactive materials" (defined in 49 CFR 106-180), and exceptions based on limited quantities defined therein, shall be used per BUS-6 guidance and interpretation.

NOTE: Transportation reporting criteria contain the following category of shipments:
Onsite shipments are movements of materials "behind fences" or within areas where public access is controlled (i.e. restricted by guards or a locked gate) and will be regulated by DOE regulations. This also includes shipments conducted as part of the formal road closure program. Onsite occurrences shall be categorized under 6.B and shall be the responsibility of the initiator of the shipment.

Intra-Laboratory shipments are movements between Laboratory buildings or technical areas across public roadways or on roads where public access is not controlled. Intra-Laboratory shipments must conform to DOT shipping regulations. Intra-Laboratory occurrences shall be categorized under 6.A and shall be the responsibility of the initiator of the shipment.

Offsite shipments are shipments beyond the confines of LANL to another location and must conform to DOT regulations. Offsite occurrences shall be categorized under 6.A, and shall be the responsibility of the initiator of the shipment if the initiator is LANL or another DOE/DOE contractor. Offsite occurrences involving receipt of shipments from non-DOE shippers shall be the responsibility of BUS-6, who shall serve as the Facility Manager. Off-Normal occurrences involving receipt from non-DOE shippers shall be subject of quarterly roll-up reports if they are not reportable for any other reason than noncompliance by that non-DOE shipper.

A. Offsite and intra-Laboratory transportation (DOT jurisdiction) occurrences.

EMERGENCY Occurrences to be reported in accordance with this Order as Emergencies are those provided within the emergency action levels specified in Section 4.0 of the LANL Emergency Response Plan, which is based on the DOE 5500 series Orders, particularly DOE 5500.2B.

NOTE: Emergency Management and Response (EM&R) shall categorize all potential emergencies.

UNUSUAL a. An offsite transportation event involving the release of hazardous material, including radioactive material, in an amount greater than the applicable DOT-defined limited quantity, transported in support of Laboratory operations.

6. TRANSPORTATION

b. Radioactive material shipment transported offsite by a Laboratory shipper that arrives at its destination with radiation or contamination levels in excess of DOT allowable limits.

c. Shipment of hazardous material (including radioactive material) that arrives at its destination with a non-reconcilable shipping paper discrepancy (either an unaccounted package or discrepant quantity), indicating the loss or apparent loss of material in an amount exceeding the applicable DOT-defined limited quantity.

- OFF NORMAL a. DOT non-compliance involving a shipment of hazardous material (including radioactive material), and which results in:
- 1) actual improper handling, or storage of material exceeding the applicable DOT-defined limited quantity, or
 - 2) actual or potential personnel exposures higher than permitted, or
 - 3) actual or potential emergency response actions inconsistent with the event.

NOTE: These non-compliance issues include material description, marking, labeling, placarding, routing, separation, segregation, hazard classification, selection of packaging material, improper blocking or bracing, or transportation activities performed by personnel not properly trained to perform the function.

b. An offsite transportation event involving the confirmed release of hazardous material, including radioactive material, not exceeding the applicable, DOT-defined limited quantity.

c. Any transportation event involving DOE property resulting in vehicular/aircraft damage of more than \$5000.

B. Onsite transportation (DOE jurisdiction) occurrences.

EMERGENCY None specified.

- UNUSUAL a. An onsite transportation event involving the release of a DOT-defined reportable quantity of hazardous substance that is transported in support of DOE operations.
- b. An onsite transportation event involving the release of hazardous material, including radioactive material, greater than the applicable, DOT-defined limited quantity.

- OFF NORMAL a. An onsite transportation event involving a confirmed release of hazardous material, including radioactive material, not exceeding the DOT-defined limited quantity.
- b. Non-compliance with any applicable LANL or DOE requirements, involving a shipment of hazardous material (including radioactive material), and which results in:
- 1) actual improper handling, or storage of material exceeding the DOT-defined limited quantity, or
 - 2) actual or potential personnel exposures higher than permitted, or
 - 3) actual or potential emergency response actions inconsistent with the event.

NOTE: These non-compliance issues include material description, marking, labeling, placarding, routing, separation, segregation, hazard classification, selection of packaging material, improper blocking or bracing, or transportation activities performed by personnel not properly trained to perform the function. Requirements that shall be evaluated for applicability include: a) the LANL Packaging and Transportation Manual; b) DOE orders and guidance; and c) facility-specific procedures.

c. Any transportation event involving DOE property resulting in vehicular/aircraft damage of more than \$5,000.

7. VALUE BASIS REPORTING

NOTE: Any occurrence specifying cost as a basis for reporting, unless otherwise stated, will be classified by the monetary values necessary to repair, replace, or otherwise restore a facility, system, or component to acceptable operation. Costs used for the reporting should be reasonable initial estimates.

EMERGENCY None specified.

UNUSUAL

- a. Estimated loss or damage to DOE or LANL property amounting to \$100,000 or more.
- b. Estimated costs of \$100,000 or more required for cleaning (including decontamination), renovating, replacing, or rehabilitating structures, equipment, or property.
- c. Deployment of DOE assets offsite for assistance to local, state or federal authorities, when the estimated costs for such deployment are expected to exceed \$100,000.

OFF NORMAL

- a. Estimated loss or damage to DOE or LANL property amounting to more than \$10,000 and less than \$100,000.
- b. Estimated loss or damage for vehicles and aircraft amounting to more than \$5,000 but less than \$100,000 for insurance purposes, considered a total loss.
- c. Estimated costs of more than \$10,000 but less than \$100,000 for cleaning (including decontamination), renovating, or replacing, or rehabilitating structures, equipment, or property.
- d. Deployment of DOE assets offsite for assistance to local, state or federal authorities, when estimated costs are expected to be more than \$10,000 but less than \$100,000.

8. FACILITY STATUS

NOTE: All occurrences reportable under other criteria of this matrix, and that result in a significant shutdown or curtailment of operations shall be additionally categorized under Group 8.

A. Any facility, process, or activity being secured, shutdown, or operations significantly curtailed.

NOTE: Target restart dates and restart criteria must be provided in all Group 8.A occurrence reports.

EMERGENCY None specified.

UNUSUAL a. Unscheduled shutdown of any facility for one week or greater.
b. The initiation of an unplanned nuclear facility shutdown or significantly curtailed operations required by either plant Technical Specifications, Operational Safety Requirements or SARs, or taken as an independent initiative by LANL or DOE.

OFF NORMAL Unscheduled shutdown of a facility, process, or operation for more than 2 consecutive working days, but less than one week.

B. Any current facility, process, or activity shutdown being extended.

NOTE: LANL will not use this part of the matrix. In cases where reportable shutdowns are extended, 10-Day Updates will be submitted under Group 8.A.

C. Any new facility or process startup being delayed.

NOTE: Construction delays and experimental process delays are generally anticipated, and are only deemed reportable if they exceed reasonable expectations.

EMERGENCY None specified.

UNUSUAL Any delay in a DOE-approved start-up schedule of 3 months or greater.

OFF NORMAL Any delay in a DOE-approved start-up schedule of more than 1 month and less than 3 months.

9. CROSS-CATEGORY ITEMS

- A. A series of related occurrences that individually do not warrant reporting under preceding criteria, but collectively are considered significant enough to warrant reporting.**

NOTE: Reporting level is to be determined on a case by case basis. All "series" occurrences shall be categorized under 9.A, but also under the appropriate occurrence Group(s) of this matrix.

EMERGENCY None specified.

UNUSUAL None specified.

OFF NORMAL None specified.

- B. A near-miss to one of the reporting classifications under preceding categories.**

NOTE: Reporting level is to be determined on a case by case basis. All "near miss" occurrences shall be categorized under 9.B., but also under the appropriate occurrence Group(s) of this matrix.

EMERGENCY None specified.

UNUSUAL An event or condition where the conditions necessary to cause an Unusual Occurrence existed, i.e., all barriers to the event initiation were compromised.

OFF-NORMAL An occurrence where the conditions necessary to cause a reportable occurrence were prevented from existing by one remaining barrier after other barriers had been compromised i.e, one additional independent failure/degradation was necessary for event initiation to be possible.

- C. Identification of potential concerns or issues that are deemed worthy of reporting.**

NOTE: Reporting level is to be determined on a case by case basis. "Potential concerns" should be categorized under other appropriate Group(s) of this matrix, if deemed appropriate.

EMERGENCY None specified.

UNUSUAL None specified.

OFF NORMAL None specified.